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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,490	08/10/2006	Ikuo Mimura	00250.000035	3824

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NEW YORK, NY 10112

EXAMINER

DOAK, JENNIFER L

ART UNIT	PAPER NUMBER
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2872

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,490	Applicant(s) MIMURA, IKUO	
	Examiner JENNIFER L. DOAK	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/19/08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Mimura et al. (US 6318866)(hereinafter Mimura).

Regarding Claims 1 and 21, Mimura discloses a retroreflective article comprising plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups from three directions of x direction, y direction, and z direction (Fig. 7) and set on a common plane decided by base line groups of the parallel V-shaped groove groups (Fig. 8), in which one-side groove angle formed between a cross line between a plane vertical to the common plane and to a V-groove vertical plane (Fig. 8), which includes the base line of a V-shaped groove and is vertical to the common plane, and a reflective lateral face containing the base line of the V-shaped groove, and the V-groove vertical plane does not form a constant angle in the reflective lateral face but the lateral face forms a curved and/or multiple surface (Fig. 8; i.e. the multiple surface is due to the differing angle of groove depth and multiple direction cuts as shown in the figures).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2872

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

As set forth above, Mimura discloses all the elements of the claims from which the following claims depend and the elements are hereby incorporated into the following according to dependency.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mimura.

Regarding Claim 2, Mimura does not explicitly disclose the following ranges wherein at least one reflective lateral face for constituting the triangular-pyramidal cube-corner retroreflective element pairs, the one-side groove angle does not form a constant angle with the maximum deviation of 0.0001° to 0.1° from a normal one-side groove angle for forming a cube corner and a reflective lateral face forms a curved and/or multiple surface. However, Mimura does teach the partial exclusion of the excluded range, specifically citing a deviation angle range of $\pm(0.01^{\circ}$ to $0.4^{\circ})$ (col. 15, lns. 10-13), which allows a non-excluded range of $\pm(0.1^{\circ}$ to $0.4^{\circ})$, which exceeds and is outside of the excluded amount. It would have been obvious to one of ordinary skill in the art at the time the invention was made to not include the range 0.0001° to 0.1° , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (C.C.P.A. 1955). One would have been motivated to adjust the deviation angle to improve reflectance.

Regarding Claims 3-5, Mimura additionally discloses that the internal angle of one of bottom-plane triangles formed of three bottom planes constituting the reflective elements ranges between 35° and 75° or ranges between 45° and 70° (Mimura discloses an angle of 58.76° at col.

21, ln. 66 – col. 22, ln. 13); the depth of a plane formed by the base line group of at least one-directional V- shaped groove constituting the reflective elements is different from the depth of other planes (Fig. 8).

Regarding Claim 6, Mimura additionally discloses that an x-directional V-shaped groove constituting the reflective elements does not pass through the intersects of y- and z-directional V-shaped grooves and is formed at a position having an offset (A_x) from a straight line connecting intersects A and B, the triangular-pyramidal cube-corer retroreflective element pairs are asymmetric pairs (Fig. 16).

Response to Arguments

Applicant's arguments filed 12/19/07 have been fully considered but they are not persuasive.

Applicant argues that the cited reference does not disclose that “the V-groove vertical plane **does not** form a constant angle in the reflective lateral face” [*emphasis added*] (rather that the angle in the reference is constant) or that “the lateral face forms a curved and/or multiple surface.”

However, Examiner disagrees with this interpretation since, first, progression along the lateral face of the reference retroreflector finds intersections between the V-grooves so that the angle with respect to the vertical is no longer constant with respect to the vertical plane at those intersection points, and, therefore, the angle of the lateral face is not maintained constant for the length of the plane, which could be the width of the retroreflector. Therefore Examiner maintains that the limitation requiring a non-constant angle with respect to the v-groove plane is met by the reference.

Second, since Applicant claimed “curved and/or multiple” surfaces, and Examiner is charged with taking the broadest reasonable interpretation, Examiner sought “curved or multiple” surfaces. Moreover, since, along the V-groove plane, there are intersections leading to different pyramids, changing angles, there must be multiple surfaces. Each facet of the pyramids, at least is a different surface. Therefore, Examiner maintains that the limitation requiring curved or multiple surfaces is met by the reference.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER L. DOAK whose telephone number is (571)272-9791. The examiner can normally be reached on Mon-Thurs: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD
3/28/08

/Stephone B. Allen/
Supervisory Patent Examiner, Art Unit 2872